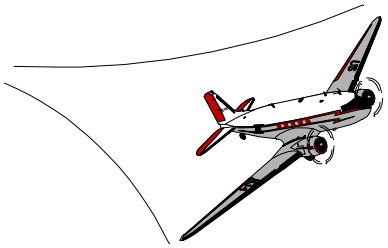
SPECIAL AIRWORTHINESS INFORMATION BULLETIN



U.S. Department of Transportation

Federal Aviation Administration

Aircraft Certification Service
Washington, DC

No. CE-02-06
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This is information only. Recommendations are not mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) recommends safety information **to DG Flugzeugbau Models DG-500M and DG-500MB sailplane owners** on the following:

- Aircraft Lubrication
- Proper securing of the head rest in the rear cockpit
- Improved carburetor control lever (applicable to the DG-500MB)
- Flight and Maintenance Manual Revision Pages

Safety Issue

DG Flugzeugbau has developed **Technical Note 834/16** that contains the detailed information for the airworthiness concerns listed above.

A copy of the DG Flugzeugbau Technical Note is included for your information with the respective Flight and Maintenance Manual pages.

Recommendation

We highly recommend that you, an owner or operator of Flugzeugbau Models DG-500M and DG-500MB sailplanes, comply with the intent of Technical Note 834/16.

For Technical Information Concerning These Safety Issues Contact

DG Flugzeugbau GmbH, Im Schollengarten 20, D 76646 Bruchsal, Federal Republic of Germany; telephone 49.7257.890; facsimile 49.7257.8922.

For Further Information Contact

Oliver Dyer-Bennet, DG USA (United States Dealer), 5847 Sharp Road, Calistoga CA 94515; telephone (707) 942-5727; facsimile (707) 942-0885.

Mike Kiesov, Aerospace Engineer/Pilot, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri, 64106; telephone: (816) 329-4144; facsimile: (816) 329-4090; email: mike.kiesov@faa.gov.

DG Flugzeugbau GmbH
76646 Bruchsal

Technical Note
No. 843/16

Subject : Greasing schedule / manual revision

Effectivity : DG-500M all serial no., DG-500MB all serial no.

Accomplishment : 31.03.2001

Reason :
1. The greasing schedule in the maintenance manual does not point out the bearings which are accessible via the access panels in both cockpits, so it must be assumed that on some gliders these bearings have never been serviced.
2. The time between lubrications can be increased to 1 year due to service experience.
3. The securing ropes of the head rest in the rear cockpit must prevent the head-rest from interfering with the rear control stick when the head rest is moved to its most forward position.
4. On the DG-500MB the carburettor control lever was replaced by an improved lever from ser. no. 5E213 and on. This new lever can also be installed on earlier ser.nos. as an option.
5. Some manual corrections.

Instructions :
1. Remove the access panels (2 in the front and 2 in the rear cockpit): You have to remove the height adjustable seat pan from the rear cockpit first. Clean and grease all accessible bearings (ball bearings and rod ends with universal bearings). Reinstall access panels and seat pan.
2. Check the securing ropes of the head rest in the rear cockpit for wear and correct length. The securing ropes must prevent the head rest from interfering with the rear control stick when the head rest is moved to its most forward position.
3. Exchange the following manual pages against new pages issued January 2001 marked with TN 843/16:

Model	Flight manual	Maintenance manual
DG-500 M	0.1, 0.3, 0.5, 4.8, 7.14, 8.2	1, 2, 3, 11, 45, 63
DG-500 MB	0.1, 0.3, 4.8	1, 2, 3, 4, 11, 19, 27, 45, 47, 48, 49, 51, 54, 62, 71, 79, 91 wiring scheme 5E101 (issued 10.05.00), drawing W40 (issued 30.11.99)

Material : Multi-purpose greases for rolling element bearings
Nylon or Perlon cord 3mm
Manual pages see instruction 3

Weight and balance : /

Remarks : All instructions may be executed by the owner. They have to be inspected and entered in the aircraft logs by a licensed inspector with the next annual inspection.

Bruchsal, date:
January 26. 2001

Author:
Dipl. Ing. Wilhelm Dirks

Wilhelm Dirks

Type certification inspector:
Dipl. Ing. Swen Lehner

Swen Lehner

LBA – approved:

The German original of this TN has been approved by the LBA under the date of *Feb. 7. 2001* and is signed by Mr. *Blume*. The translation into English has been done by best knowledge and judgement.

0.1 Record of revisions

Any revision of the present manual, except actual weighing data, must be recorded in the following table and in case of approved sections endorsed by the responsible airworthiness authority.

The new or amended text in the revised page will be indicated by a black vertical line in the right hand margin, and the Revision No. and the date will be shown on the bottom left hand of the page.

Rev. No.	Affected Pages/ section	Description	Issue Date Date	LBA Approval Signature	Inserted Date
1	0.3-0.5, 2.6,4.10 4.15,4.17	TN 843/2	Febr.92	March 04, 92	
2	0.1,0.3, 0.4,0.5, 3.4,6.6,6.7,7.2,7.7,7.8,8.7	TN 843/5	Sept.92	Dec.08, 92	
3	0.1,0.3, 0.4,0.5, 2.6,2.8,2.10, 4.12,4.13,5.9, 6.5,6.9,7.17,7.18,8.2,8.6	TN 843/7	Febr.96	April 08, 96	
4	0.1,0.3,2.6	TN 843/8	March 97	05.06.97	
5	0.1, 0.5, 7.11	TN 843/11	Dec. 98	Dec. 17, 98	
6	0.1, 0.3, 0.5, 4.8, 7.14, 8.2	TN 843/16	Jan. 01	07.02.01	

0.2 List of effective pages

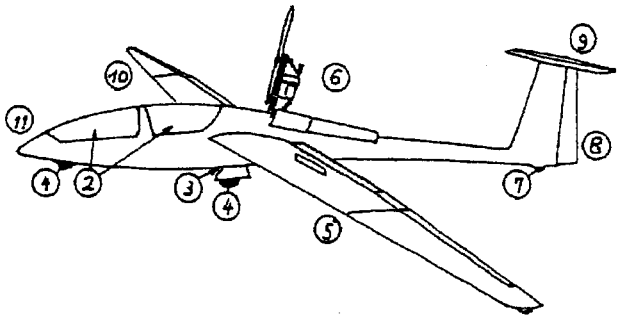
Section	page	issued	Replaced/	replaced/	replaced
0	0.0	April 89			
	0.1 -				
	0.2	-			
	0.3	see record of revisions			
	0.4	"			
	0.5	"			
	0.6	April 89			
1	1.1	"			
	1.2	Febr. 91			
	1.3	April 89			
	1.4	"			
	1.5	"			
	1.6	"			
2 App.	2.1	"			
"	2.2	"			
"	2.3	"			
"	2.4	"			
"	2.5	"			
"	2.6	"	Febr.92/	Febr.96/	March 97
"	2.7	"			
"	2.8	"	Febr.96		
"	2.9	"			
"	2.10	"	Febr.96		
"	2.11	"			
3 "	3.1	"			
"	3.2	"			
"	3.3	"			
"	3.4	"	Sept.92		
"	3.5	"			
"	3.6	"			
4 "	4.1	"			
"	4.2	"			
"	4.3	"			
"	4.4	"			
"	4.5	"			
"	4.6	"			
"	4.7	"			
"	4.8	"	Jan. 01		
"	4.9	"			
"	4.10	"	Febr.92		
App.	4.11	April 89			

0.2 List of effective pages (cont.)

Section	page	issued	replaced	replaced
7	7.1	April 89		
	7.2	"	Sept. 92	
	7.3	"		
	7.4	"		
	7.5	"		
	7.6	"		
	7.7	"	Sept. 92	
	7.8	"	" "	
	7.9	"		
	7.10	"		
	7.11	"	Aug. 90	Dec. 98
	7.12	"		
	7.13	"		
	7.14	"	Jan. 01	
	7.15	"		
	7.16	"		
	7.17	"	Febr. 96	
	7.18	"	" "	
8	8.1	"		
	8.2	"	Febr. 96	Jan. 01
	8.3	"		
	8.4	"		
	8.5	"		
	8.6	"	Febr. 96	
	8.7	"	Sept. 92	
9	9.1	April 89		

B Inspection after rigging

Walk around the aircraft



1. All parts of the airframe
   a) check for flaws such as bubbles, holes, bumps and cracks in the surface
   b) check leading and trailingedges of the wings and control surfaces for cracks
2. Cockpit area
   a) check the canopy locking mechanism
   b) check the canopy emergency release see sect. 7.15 (not each day, but min. every 3 month)
   c) check the main pin securing
      check the securing ropes of the headrest in the rear cockpit for wear and function
   d) check all controls for wear and function, incl. positive control check
   e) check the tow release system for wear and function incl. cable release check
   f) check for foreign objects
   g) check the instrumentation and radio for wear and function
   h) check the brake fluid level
   i) check the fuel filter for dirt and sludge
   j) check the engine controls
   k) check all fuses including the battery fuse
   l) check the extension-retraction mechanism by operating it in both directions. The extension time should not exceed 13 seconds!
      Note: If the mechanism can't be operated with the ignition switch or with the manual switch, check the circuit breaker.
   m) extend the engine with the manual switch

b) Tailwheel: Tyre 200 x 50 2 PR
Diameter 200 mm (7.87 in)
Tyre pressure 4 bar (58 psi)

c) Nosewheel: Tyre 260 x 85
Diameter 260 mm (10.2 in.)
Tyre pressure 2.5 bar (36 psi)

Option: See diagram 10 M.M.
The nose wheel is connected to the rudder control with springs.

7.5 **Tow hooks**
See diagram 5 M.M.
Safety release "Europa G 88" for winch launch installed near the C.G.
"nose release E 85" installed in the fuselage nose for aerotow.
Both hooks are operated by the same handle.

7.8 **Seats and safety harness**
The front seat is constructed as an integral inner shell.
The rear seat is height adjustable. The adjustment is by means of a strap similar to the shoulder harness.
As safety harness only symmetric 4-point harnesses fixed at the given fixing points are allowed.

7.9 **Baggage compartment**
Max. load 15 kg (33 lbs.).
Heavy pieces of baggage must to be secured to the floor.

7.10 **Waterballast system**
See diagram 6 M.M.
The wingtanks are constructed as double wall bags with a capacity of 50 l (13.2 U.S.gal) per wing. The dump valves are mounted in the wings and the control is hooked up automatically when rigging the glider.

8.1 **Introduction**

This section contains manufacturer's recommended procedures for proper ground handling and servicing of the sailplane. It also identifies certain inspection and maintenance requirements which must be followed if the sailplane is to retain that new-plane performance and dependability. It is wise to follow a planned schedule of lubrication and preventive maintenance based on climatic and flying conditions encountered.

8.2 **Inspection period, maintenance**

The "Instructions for continued airworthiness (maintenance manual) for the DG-500M have to be followed.

A Before each rigging all the connecting pins and bushes should be cleaned and greased. This includes the control connectors.

B The contact surfaces of the canopies to the fuselage are to be rubbed with colourless floor-polish (canopy and fuselage side) to reduce grating noise in flight. Polish at the beginning of the flight season and then every month.

C Once a year all the bearings and hinges should be cleaned and greased. See the greasing programme of the maintenance manual.
Each year the control surface displacements, adjustments and general condition must be checked. (See the maintenance manual).

D Maintenance of the engine see maintenance manual sect. 3.

8.3 **Alterations or repairs**

It is essential that the responsible airworthiness authority be contacted **prior to** any alterations on the airplane, to ensure that the airworthiness of the sailplane is not impaired. It is prohibited to execute the alteration without the approval of the airworthiness authority. The manufacturer will not be liable for the alteration or for damages resulting from changes in the characteristics of the aircraft due to alteration. So it is strongly recommended to execute no alternatives which are not approved by the aircraft manufacturer.
External loads such as external camera installations are to be regarded as alterations! Repair instructions can be found in the DG-500M repair manual. No repairs should be carried out without referring to the manual.

Manual amendments

No.	Page	Description	Date	Signature
1	3, 4, 49, 65, 67, 68, 88, 89, 91, 99 diagr. 11	TN 843/2	Febr.92	
2	1-4, 6, 9, 11, 17, 19, 37, 39, 40, 44, 46, 49-51, 66-69, 75, 81, 88, 91, 93 diagram 11, service-information 0-2/92	TN 843/5	Sept.92	
3	1-6, 24, 25, 26, 32, 37, 37a, 37b, 37c, 37d, 38, 40, 42, 49, 50, 52, 59, 77, 85, 85a, 85b, 88, 89, 90, 92, diagram 6,8,13, drawing 5E1	TN 843/7	Febr.96	
4	1, 3, 4, 47 59, 92, diagr.11	TN 843/8	March 97	
5	3, 52	TN 843/9	Oct. 97	
6	1, 2, 3, 11, 45 63	TN 843/16	Jan. 01	

Issued: see last item 1

Instructions for continued airworthiness

1.4 Aileron and wing flap control

1.4.1 Control circuit (see diagrams 3 and 4)

A spring at the mixer shaft 5St60 provides additional aileron return force at positive wing flap settings.

1.4.2 Deflections and tolerances

Aileron deflections:

up	20° ± 1°	64 ± 3 mm (2.52 ± 0.12 in.)
down	10° ± 1°	32 ± 3 mm (1.26 ± 0.12 in.)

measured at 182 mm (7.17 in.) from hinge axis (at the aileron root), wing flap setting 0°.

Wing flap deflections:

	- 10°	- 40 ± 3 mm (1.57 ± 0.12 in.)
L =	+ 15°	+ 59 ± 3 mm (2.32 ± 0.12 in.)

measured at 228 mm (9.0 in.) from hinge axis against the fixed part at the wing root. At flap setting 0° the wingflaps have to be adjusted against the fixed part at the wing root with 0 ± 1 mm (0 ± 0.04 in.).

1.4.3 Stops

The aileron stops are located at the rear control column and can be adjusted with two 10 mm open-end wrenches.

The stop for positive wingflap setting is located under the removable left-hand side panel of the rear seat on the pushrod of the wingflap handle 5St73.
The sleeve which is riveted to the rod must stop at the main bulkhead in landing setting. Adjustment is by adjusting the rear pushrod 5St74 against 5St73.

The stop for negative setting (front) is located in the front cockpit on the inner guiding tube 5ST68/2 of the front wingflap handle 5St72.
Adjustment by placing shims with inside diameter 12 mm (0.47 in.) between 5ST72 and the sleeve which is riveted to 5St68/2.

3. Maintenance

3.2 Maintenance of the airframe

The sailplane is service free except for the care of the surfaces (see sect. 3.1) and greasing and oiling of the control system and all pins (see sect. 3.3).

After a landing in a soft field, the undercarriage box and tow hook should be thoroughly cleaned.

3.3 Greasing and oiling

A The contact surfaces of the canopies to the fuselage are to be rubbed with colourless floor-polish (canopy and fuselage side) to reduce grating noise in flight. Polish at the beginning of the flight season and then every month.

B Once a year your DG-500M should be carefully checked and all bearings, including control surface hinges, should be cleaned and greased if necessary. The various greasing points are as follows:

- Aileron drive connections at the inboard aileron.
- Airbrake drive connection - in airbrake box, also grease the brake paddle pivots.
- Remove the access panels on the left hand cockpit walls and grease all the pushrod guides, but not those with Teflon linings, note see below.
- Remove the baggage compartment floors and open the baggage compartment rear cover to grease all bearings.
- Open the access panels (2 in the front and 2 in the rear cockpit). In the rear cockpit you have to remove the height adjustable seat pan first. Grease all accessible bearings (ball bearings and rod ends with universal bearings)
- Remove the control column covers and grease all the bearings associated with the control columns.
- Grease the rudder pedal adjustment slide.
- Oil all hinge points on the undercarriage in the undercarriage box.
- Clean and grease all control surfaces hinges.
- Clean and grease the control hook ups for wing flaps, ailerons, airbrakes and elevator control.
- Clean and grease all pins and bushes of the wing and tailplane attachment.
- Grease the powerplant see sect. 3.5

Note: The greases we recommend are lithium based pressure-resistant anti-corrosion greases or lithium-soap greases (multi-purpose greases for rolling element bearings).

Note: The sliding guides of the following parts are made from Teflon and should not be greased:

Landing gear controlhandle 5FW39 on 5St68/2, Airbrake control handle 5St69 on 5St68/1 and wingflaps handle 5St72 on 5 St68/2.

If these parts have been greased inadvertently you have to disassemble the parts and to clean them completely with Acetone.

4.10 Replacement of wing fuel tanks

Uniroyal rubber fuelbags 4F28

a) Disconnect the plastic fuel line inside the wing at the quick connector attached to the wing root rib. Loosen the perlon cords marked red and black at their attachment at the root rib.
Attach an extension cord 3 mm (1/8 in.) diameter 5 m long to the red perlon cord. Remove the fuel tank by pulling on the black perlon cord and on the fuel line. Disconnect the wire for the electrostatic connection.

b) Replacement is done by reversing the above procedures.
Attach the wire for the electrostatic connection by use of a poprivet see sketch, if there is no plug installed.